Missions for America
*Semper vigilans!*
*Semper volans!*

# The Coastwatcher

**Publication of the Thames River Composite Squadron**
**Connecticut Wing**
**Civil Air Patrol**

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Vol. VIII, No. 39 28 October, 2014

*SCHEDULE OF COMING EVENT*

01 NOV-CTWG SAREX
04 NOV-TRCS Meeting-Fruit Sale Ends
08 NOV-CTWG Pilots' Meeting-MMK
08-09 NOV-SLS Course-Meriden
11 NOV-TRCS Meeting
18 NOV-TRCS Meeting
25 NOV-TRCS Meeting

02 DEC-TRCS Meeting
09 DEC-TRCS Meeting
16 DEC-TRCS Annual Holiday Party
27 DEC-03 JAN-Cadet Leadership/NCO School

## ANNUAL CITRUS FRUIT FUNDRAISER

The sale has only one more week to run. The financial security of the Squadron future activities depend upon your hard work.


Using naval terminology, this is an "all-hands evolution." Those of you who have seen the movie *Twelve O'Clock High* will recognize the Army Air Force phrase "maximum effort." Now is the time for all hands to exert a maximum effort.

## CADET/SENIOR JOINT MEETING NOTES

*28 October, 2014*

*TWO MITCHELL AWARDS*

Cadets and Seniors met in concert to honor Cadet Second Lieutenant Keith Trotochaud and Cadet Second Lieutenant Jessica Carter. Cadets earn the Major General Billy Mitchell Award after completing the first eight achievements in the CAP Cadet Program.

*C/2dLt Carter addresses the audience observed by C/2dLt Trotochaud.*

Major Roy Borque explained that these

achievements require a candidate to pass two closed book exams, in Leadership and Aerospace Education, with grades of 80% or higher. They must also attend a cadet encampment, pass a physical fitness test, and assume some Squadron duty such as a Flight Commander or Public Affairs Officer.

C/2dLt Trotochaud joined Thames River Composite Squadron in July of 2011 and is currently Deputy Cadet Commander. He has served on the Connecticut Wing Cadet Advisory Council and earned awards for performance at two CTWG Summer encampments.

Trotochaud is a sophomore at the Marine Magnet School in Groton were he is an active member of the track, fencing, and cross-county teams.

C/2dLt Jessica Carter also joined CAP in 2011 but initially served in the Randolph Composite Squadron, Randolph AFB, San Antonio, Texas before transferring to TRCS in August of 2013.

Cadet Carter has held a number of squadron staff positions and has attended Non-commissioned Officer Academy.

Cadet Carter is a sophomore at East Lyme High School who enjoys playing guitar and softball and studying psychology.

LtCol Lief Bergey was Master of Ceremonies, Wing Headquarters was represented by Maj Robin Wojtcuk, former member of the Squadron and CTWG Director of Cadet Programs. LtCol Stephen Rocketto. CTWG Director of Aerospace Education offered remarks about Billy Mitchell's career and achievements.

*Maj Wojtcuk, observed by Representative Ryan congratulates the new C/2dLts and their parents on behalf of CTWG..*

Representative Kevin Ryan of the 139th district representing Montville, Bozrah, and Norwich presented Trotochaud and Carter with Official Citations recognizing their achievements. Ryan also praised the Civil Air Patrol for its Cadet Program.


*Representative Ryan presents General Assembly Citations to the Mitchell Awardees*
*(Photo by C/CMSgt Virginia Poe)*

A social hour and light refreshments closed the evening's activities.

## NEW YEAGER AWARDEE IN SQUADRON

The Aerospace Education Section is proud to announce that 2dLt Francisco Mariano has met the requirements of the Aerospace Education Program for Senior Members and is entitled to wear the Yeager ribbon.

*2dLt Mariano and the ribbon which he is now entitled to wear.*

TRCS now has 20 or 24 seniors holding this award. The four seniors who do not hold the award are newly joined.

## STORAGE TRAILER ROOF REPAIRED

*Reported by*
*Maj Willi Lintelmann*

The roof of the storage trailer has been replaced.

Three professionals from Macri Roofing prepped the existing roof and installed a membrane, installed trim, and sealed the sections with adhesive.

## TRCS PRIVATE PILOT GROUND SCHOOL

The second session of the TRCS Private Pilot Ground School was held on Sunday, 26 October from 1500 to 1700. The course is designed to prepare students for the FAA Private Pilot Written Test.

LtCols deAndrade and Rocketto covered physics of flight, aircraft documentation, maintenance requirements, and control and stability.

## SQUADRON LEADERSHIP S COURSE OFFERED

The CTWG will offer a Squadron Leadership Course at Meriden Airport on 8-9 November. SLS is required for advancement to Level II of the CAP Professional Development Sequence.

The SLS provides CAP's senior members with a basic understanding of CAP operations at the squadron level and how those operations affect CAP's national missions. Participants will learn more about CAP customs, core values, and communications. Case studies, discussion, and group assignments are integral facets of the SLS.

The course fee is $25. For further information, contact the Course Director, Maj Roger Malagutti at rmalagutti@aol.com of call at 203-597-7106.

## WING-WIDE PILOTS MEETING

There will be a Wing Wide Pilot Meeting at Meriden airport on Saturday, 08 November. The plan is to conduct O-flights from 0900 to 1300 and hold a pilots meeting (lunch provided) from 1300 to 1500.

Col Chapman, CTWWG Commander will speak to the pilots about implementation of FY15 flying, and the Wing's future flying plans. If time allows, WMIRS 2.0 and CAPF 104 issues will be discussed.

If you can fly a CT Wing plane in, please do so. Plan to arrive in time to start conducting O-flights at 0900. The cadets who need o-flights and ground staff to handle the O-flight WMIRS entries will be there.

If you can do o-flights or plan to just attend the pilots' meeting, please contact Maj Johnny Burke at stonyburke@hotmail.com or Maj Roger Malagutti at Rmalagutti@aol.com for planning of a flight schedule and lunches.

## AEROSPACE CURRENT EVENTS

*Dragon Capsule Returns from International Space Station*

SpaceX recovered a Dragon cargo capsule last Saturday after it parachuted into the Pacific Ocean. The capsule was carrying 3,300 pound of equipment and trash. This the fifth time that SpaceX has successfully launched an recovered a payload to and from the ISS.

Orbital Sciences Corporation is also a client of NASA but their Cygnus system is unable to return cargo.

*A New Engine for the B-52?*

The venerable Boeing B-52 Stratofortress first flew in 1952 and just under 100 B-52H models are still operational. The original design concept was a six engine propeller driven aircraft and it has been around for half a century. The last one produced was in 1962! Final retirement is scheduled for 2044

The U.S. Air Force is considering a re-engining of the eight jet bomber. The eight old style engines guzzle a prodigious amount of jet fuel and more modern power plants such as the Pratt&Whitney P&W2000 or the Rolls-Royce RV.211-535 are far more economical and so powerful that four of them could replace the present eight Pratt TF33s. This would save money on both fuel and maintenance but technical and budgetary problems abound so the issue is in doubt.

The Stratofortress has used two engines to date. Early models were fitted with Pratt & Whitney J57 engines. The currently flying B-52H is outfitted with the Pratt TF33 turbofans.

## AEROSPACE HISTORY

*The X Planes*
*Part IV*

*Rockwell-MBB X-31*

The X-31 was a collaborative effort sponsored by a wide range of experimenters and uniquely, the product of two countries, one foreign. Rockwell International, the successor to North American Aviation and Germany's Messerschmitt-Bölkow-Blohm (MBB), a descendent of a number of German aircraft constructors. This was the first time that an X-Plane program teamed the United States and a foreign power.

*X-31 flanked by less sophisticated thrust vectoring experimental aircraft, the F/A-18 and the F-16*
*(Credit NASA Dryden)*

The two aircraft built were Enhanced Fighter Maneuverability demonstrators designed to explore flight regimes at high angles of attack (AOA) using thrust vectoring and advanced control systems to maintain control.

When an aircrafts airfoil exceeds a critical angle of attack, stall occurs, flow separates from the wing, and lift is lost. Typically, in most aircraft this occurs at an AOA of around 15 degrees. The X-31 used thrust vectoring and digital control systems to maintain control authority at up to 30 degrees.

Thrust vectoring was a key to flight beyond the critical AOA. Thrust vectoring is the diversion of engine exhaust flow using rotating nozzles. The need to supply air to the engine during vertical flight without a ram effect resulted in the huge maw-like air intake in the nose.

The X-31 first took to the air in 1990 and flew over a thousand missions accumulating data at high angles of attack, up to 70 degrees, and over a wide range of flight regimes which were beyond the capabilities of normal aircraft.

One of the aircraft was destroyed when icing on the instrumentation boom led to the corruption of the data being fed to the computer. The aircraft become uncontrollable and the pilot ejected.

The project ended in 2003 and the surviving X-31 is now on view at the *Deutsches Museum Flugwerft Schleissheim*in *Oberschleißheim*

*Boeing X-32*

In 1996, the U.S. Department of Defense awarded Boeing a four-year contract for the concept demonstration phase of the Joint Strike Fighter, or JSF, program competition. The goal was to develop a low-cost, multirole tactical aircraft for the U.S. Air Force, Navy and Marine Corps, and the United Kingdom's Royal Navy and Royal Air Force.

As one might expect, a one size fits all approach has met with considerable difficulties in the past. Former Secretary of Defense McNamara's TFX, the F-111, failed to meet the U.S. Navy standards

for carrier operations. An all-purpose tool might be able to do many jobs minimally but none of them well.

The program under which the X-32 was launched envisioned an aircraft which could replace the F-16, F/A-18, and AV-8 Harrier. The program eventually morphed into the Joint Strike Fighter Program which ultimately pitted the Boeing's X-32 Lockheed-Martin's X-35.

*A rainy day at Naval Air Station Patuxent River finds both the X-32B and the X-35C in close proximity.*

First flown in March of 2001, the aircraft demonstrated its short and vertical take-off and landing ability using thrust vectoring.

The X-32 never demonstrated an inflight configuration change from hover to supersonic flight as did the X-35. Ultimately, the X-35 won the contract and went on the become the F-35 Lightning II.

*Lockheed-Martin X-35*

As related in the section on the X-32, the X-35 won the Joint Strike Fighter contract and its later development was accepted as the F-35. A big difference between the two aircraft was in the system used for vertical flight.

Boeing used thrust vectoring as used in the Harrier and F-15. Lockheed-Martin chose to go with a direct-lift fan located aft of the cockpit. The novel lift system won the Collier Trophy as the "the greatest achievement in aeronautics or astronautics in America, with respect to improving the performance, efficiency, and safety of air or space vehicles, the value of which has been thoroughly demonstrated by actual use during the preceding year."

*An E-35B at the Udvar-Hazy Annex of the National Air and Space Museum.*

The X-35 turned out not to be a common all size fits all aircraft. Three flavors are in production or development: the USAF F-35A which is the conventional take-off and landing variant, the Marines F-35B tailored for short-take and vertical landings, and the Navy's Catapult Assisted Take-Off But Arrested Recovery fighter, designated F-35C.

McNamara's “holy grail” of commonality among the aircraft of all of the services would reduce production, maintenance, training, and operation costs but differences in basing and mission demand that various service models differ in critical ways. The F-35 is a compromise between commonality and the need to meet the demands of each of the services. The success of the X-35 concept and its three lineal descendents will be decided by history.